Poplar Point Remediation & Restoration

The District of Columbia Department of the Environment (DDOE) and the National Oceanic and Atmospheric Administration (NOAA), along with their contractor RIDOLFI Inc., have been collaborating on studies to evaluate environmental conditions at the Poplar Point site under the terms of a Congressional appropriation passed to fund actions there that include:

- Environmental investigation,
- Site remediation, and
- Habitat restoration.

Incorporation of freshwater tidal marsh restoration into remediation plans for Poplar Point, as required by the Congressional appropriation, has long been envisioned. A conceptual design has been developed that integrates actions to deal with both site contamination and marsh restoration and has the flexibility to be integrated with other activities in the area such as commercial or residential development.

There have also been discussions about “daylighting” Stickfoot Creek (removing it from the stormwater sewer pipe and allowing it to flow in a natural stream channel). Daylighting could be done independently of remediation and tidal wetland restoration, or, it could be integrated into that project. The conceptual design presented here integrates daylighting Stickfoot with marsh restoration.

Contamination and Remedial Actions

Several studies, including those conducted for the DDOE and NOAA, have characterized the degree of contamination in soils, wetland sediments, and groundwater at the site.

The results of these investigations indicate that although many chemicals were detected above one or more screening levels in soil or groundwater at Poplar Point, a few chemicals were more prevalent than others and were therefore determined to be Contaminants of Concern (CoCs). The CoCs were presumably either associated with known historical activities at the site, such as fuel storage tanks, possible pesticide use, or placement of dredge spoils; or were detected more frequently or at higher concentrations relative to the screening levels than other chemicals.

Nine compounds were identified as CoCs: benzo(a)pyrene, DDT, arsenic, benzene, methyl tert-butyl ether (MTBE; a gasoline additive), vinyl chloride, gasoline-range hydrocarbons, diesel-range hydrocarbons, and motor oil-range hydrocarbons. An ecological risk assessment concluded that CoCs at the site are at concentrations exceeding risk-based screening criteria for soil invertebrates, plants, aquatic receptors, birds and mammals. A human health risk assessment considered a broad range of potential exposure pathways and identified potential risks associated with ingestion of soil or water, and dermal contact with soil.

In light of these results, remedial objectives were developed to:

- Prevent human contact with soil or sediment that poses an unacceptable risk.
- Prevent ecological receptors from contacting soil or sediment that poses an unacceptable risk.
- Prevent ecological receptors from ingesting prey that have accumulated contamination such that they pose an unacceptable risk.
- Prevent off-site migration of contamination that would pose an unacceptable risk to offsite human or ecological receptors.

NOAA RIDOLFI Inc.

- Coordinate remedial activities to ensure that remedial actions result in the attainment of DDOE and federal regulatory standards, are consistent with long range plans, and focus on likely potential exposure pathways.
- Integrate restoration actions with remedial efforts consistent with broader restoration goals for the Anacostia River. These include restoring tidal wetlands and improving surface water runoff patterns to the River that would positively influence water and habitat quality in the River.

Basis for Wetland Restoration / Preservation

There are numerous agreements that serve to restore tidal wetlands in the Anacostia watershed to which the District is a co-signer (for example, Chesapeake 2000), plus requirements of environmental statues that also apply to the restoration and preservation of habitat. Wetlands are a key component required to reaching the goal of a healthy, swimable, fishable river.

There are also environmental laws designed to protect human health and the environment which require that certain remedies be taken when there have been releases of contaminants. While the objectives of contaminated site remediation and site restoration are distinct, they are interrelated. The remedial program stops or prevents a threat to public health and the environment. Meanwhile, the restoration program minimizes injuries to natural resources caused by contamination; provides for restoration of resources impacted by contamination; and, also compensates for any additional impacts of remedial actions.

Environmental laws provide for, and encourage, an integrated remediation/restoration approach because it is quicker, cheaper, and more efficient. The benefits of such an approach are numerous and include such factors as:

- Protects resources;
- Minimizes remaining injuries while enhancing recovery;
- Promotes the unified collection of data for the remedial and restoration process;
- Accelerates restoration of resources;
- Reduces construction costs;
- Reduces restoration requirements; and
- Coordinates with site development.

In addition, DDOE and federal laws also protect certain existing habitats, such as the non-tidal wetlands present on Poplar Point.

Additional Benefits of Wetland Restoration / Preservation at Poplar Point

The D.C. Lanham area of the Poplar Point site has a well-developed freshwater, non-tidal wetland that offers significant, rare and possibly irreplaceable habitat. This 4.15-acre area includes mature, forested scrub/shrub wetlands that provide crucial nesting habitat for the willow fly catcher. National Park Service biologists have indicated that such habitat is extremely rare in the D.C. area.

In addition, freshwater tidal wetlands are quite rare along the banks of the Anacostia River. Less than 10 percent of the historical tidal wetlands remain, which has resulted in major impacts to fish communities in the Anacostia and reduced water quality. Restoration of shoreline wetlands is a major priority for the District and several groups, including, the Anacostia Watershed Toxics Alliance and the Anacostia Watershed Society among others.

Freshwater tidal wetlands provide unique conditions that support wetland plants, along with the fish, birds, and small mammals that use the habitat. Freshwater tidal wetlands also provide critical habitat for numerous juvenile fish (such as striped bass, shad, and herring) to feed and find refuge from predators. Freshwater tidal wetlands provide other environmental benefits as well, including filtering sediment and pollutants from the water, capturing nutrients, moderating peak flows, and providing connectivity between adjacent aquatic and riparian habitats. The Poplar Point site offers a unique and rare opportunity to restore accessible tidal habitat because of its position in the landscape, because of its undeveloped status, and because of the scarcity of suitable land.

The Poplar Point site is large enough to allow for integration of wetland restoration efforts along with engineered wetlands for the treatment of stormwater. In this scheme, treatment wetlands would be constructed at the point of discharge from an existing or planned stormwater system, such as Stickfoot Creek or a roadway. The treatment wetlands would provide initial filtration and absorption of contaminants. Discharge from the treatment wetlands would then be directed into the restored wetland system, where the water would receive additional treatment before entering the Anacostia. Restored wetlands would improve the economic viability of the area in the site development process by providing a pleasing, natural attraction for visitors and businesses.

Conceptual Design

The attached figure shows a conceptual design of a tidal wetland that is integrated with the daylighting of a portion of Stickfoot Creek. In this concept, the Stickfoot storm sewer would be excavated at the southern end of the property and rerouted to the west in a newly constructed, more natural stream channel. A wetland complex on the western side of the D.C. Lanham property would have open water, channels, islands, and marsh plains to provide habitat complexity for a variety of plants and animals. Some soil excavated to create this restoration project, if suitable, could be used to cap contaminated areas. The remainder of the material could either be hauled off or used as fill for other nearby areas. A preliminary cost of $2.2 million was estimated for the integrated remediation/restoration project.

The figure also shows two areas that might be used to treat urban stormwater runoff. The first area would provide treatment capacity for water flowing through Stickfoot Creek. The second area, on the far west of the tidal wetland complex, could treat runoff from the Frederick Douglass Bridge. The cost of these stormwater treatment wetlands is included, and is less than 15 percent of the total cost.

A channel from the north end of the tidal wetland would be excavated toward the east and would reconnect with Stickfoot sewer just south of Anacostia Drive, so that it would flow into the Anacostia River through the existing culvert. The relatively small size of this culvert is likely to limit the river's connection to the tidal wetlands. Creating additional, wider connection points would improve conditions at additional cost. Tidal fringe wetlands are also shown on the figure in a band paralleling the Anacostia River. These could be constructed by removing the seawall at the river's edge and grading. Because of their location, fringe wetlands would offer valuable nutrient filtering potential and high habitat value, particularly for fish that frequent shoreline habitats.

Overall, this design:

- Addresses contamination efficiently;
- Preserves the integrity of the METRO Green Line;
- Provides critical tidal habitat;
- Partially fulfills obligations made by the District under various agreements to restore wetlands;
- Addresses natural resource issues; and
- Provides a passive educational feature.

Because of its proximity to the heart of the District, its easy access to mass transit, and its rarity in the region, a natural wetland feature would be a major asset and attraction that could easily be integrated with other development projects along the Anacostia River.

Other Resources

A Focused Feasibility Study that provides a detailed examination of alternatives for cleanup of contamination will be available soon.

Characterization reports of the environmental conditions at Poplar Point are available at:

http://response.restoration.noaa.gov/poplarpoint/